

**THE ARB BORD OF HEALTH SPECIALIZATIONS
SCIENTIFIC COUNCIL OF ANAETHESIA**

**FINAL EXAM – PAPER TWO
16 SEPTEMBER 2014
12-2 P.M**

NAME:

NUMBER:

CENTER:

1. Which of the following agents used as adjunct in therapy of chronic pain can cause rebound hypertension after abrupt cessation of therapy
- A. Topiramate
 - ☒ B. Clonidine
 - C. Milnacipran
 - D. Carbamazepine
 - E. Gabapentin
2. About A- δ fibers choose the CORRECT ANSWER
- A. Are thick Nerves \times
 - ☒ B. Unmyelinated fibers
 - C. Have a slower conduction than C fibers \times
 - ☒ D. They are associated with sharp pain, temperature, cold, and pressure sensations
 - E. Are low-threshold mechanoreceptors \times
3. Which of the following statement during ultrasound imaging for Regional anaesthesia is FALSE?
- ☒ A. Blood vessels are anechoic
 - B. Fat tissue is hypoechoic
 - C. Tendons are hypoechoic
 - D. Nerves can both be hyper- and hypoechoic
 - E. Acoustic shadow artefact is seen when beam meets bone. \checkmark
4. What is not a complication of an USG stellate ganglion block
- ☒ A. Horner's syndrome
 - B. Puncture of the inferior thyroid artery
 - C. A seizure
 - D. Oesophageal injury
 - E. Brachial plexus blockade
5. Which statement regarding the use of opioids for the management of acute pain is TRUE?
- ☒ A. In adults patient weight is the best predictor of opioid requirements \times
 - B. Metabolism to codeine-6-glucuronide produces the analgesic effect of codeine
 - C. Morphine produces more nausea and vomiting than pethidine \times
 - D. Pethidine is superior to morphine in the management of renal colic pain \times
 - ☒ E. Tramadol has a lower risk of respiratory depression than other opioids at equianalgesic doses

6. "Allodynia" is:
- (A) Pain caused by stimuli that are usually not painful
 - B. The 'burning' sensation of causalgia
 - C. Red flare with nerve damage
 - D. Due to reflex sympathetic dystrophy
 - E. Not associated with nerve damage
7. The pain of chronic herpetic neuralgia is best controlled by
- (A) Ipsilateral stellate ganglionectomy
 - B. Intrathecal alcohol injection
 - C. Analgesic drugs
 - D. Dorsal rhizotomy
 - E. Topical capsaicin
8. In the treatment of phantom limb pain
- A. Calcitonin infusion is NOT effective
 - (B) Gabapentin reduces the pain
 - C. Intravenous lignocaine reduces the pain
 - D. Ketamine provides long-term pain relief
 - (E) Opiates are NOT effective
9. Causes of prolonged postoperative recovery of consciousness are all of the following EXCEPT:
- (A) Heart failure. ✓
 - B. Intraoperative cerebral event ✓
 - C. Myxoedema ✓
 - D. Prolonged action of muscle relaxants ✓
 - E. Hypoventilation.
10. A patient has a CT-confirmed retroperitoneal haemorrhage. He is on warfarin for atrial fibrillation. His international normalised ratio (INR) is usually stable between two and three. It is now eight, and this may be explained by the recent commencement of a new drug. Of the following drugs, which is the most LIKELY to be responsible for the derangement?
- A. Clopidogrel
 - B. Paracetamol
 - (C) Amiodarone
 - D. Fluconazole
 - E. Metronidazole
- ↑ warfarin

11. A 54-year-old male requires emergency laparotomy. He has long-standing depression and is taking a monoamine oxidase inhibitor. Which one of the following monoamine oxidase inhibitors is LEAST LIKELY to cause incident during conduct of general anaesthesia?

- A. Moclobemide
- ☒ B. Phenelzine
- C. Isocarboxazid
- D. Tranylcypromine
- E. Iproniazid

12. Problems during a laparoscopic cholecystectomy include all EXCEPT:

- A. Fall in cardiac output with an intra-abdominal pressure of above 15 mmHg ✓
- B. Acidosis and hypercarbia in patients with cardiovascular disease after CO₂ insufflation
- ☒ C. Stress response significantly less than with open cholecystectomy ✓ (2)
- D. Increased incidence of regurgitation ✓
- E. Pneumothorax ✓

13. In severe anaphylaxis under anaesthesia, which of the following is MOST COMMONLY the first to be detected?

- A. Flushing of the skin
- B. Facial oedema
- C. Desaturation
- D. Difficulty in ventilating
- ☒ E. Decrease in arterial pressure (9)

14. Recognized features of fat embolism include all of the following EXCEPT:

- A. Mental confusion ✓
- B. Bradycardia ✓
- C. Petechial rash ✓
- D. Respiratory distress syndrome ✓
- ☒ E. Pyrexia. (10)

15. A young man admitted to casualty following a road traffic accident is found to have central dislocation of the hip and is shocked. MOST LIKELY cause is:

- A. Ruptured bladder
- B. Ruptured urethra
- ☒ C. Blood loss. (11)
- ☒ D. Neurogenic shock
- E. Fat embolism.

16. In patients with haemorrhagic shock all of the following are true EXCEPT:

- A. Physiological dead-space is increased ✓
- B. Renal blood flow is decreased ✓
- C. Antidiuretic hormone (ADH) secretion is increased ✓
- ☒ D. The oxygen dissociation curve is shifted to the left. 12
- E. Oxygen delivery is decreased. ✓

17. Concerning hip arthroplasty ONE IS TRUE

- A. Methyl-methacrylate is a cardiac inotrope x
- B. Hypoxia may be caused by marrow embolisation
- ☒ C. Regional techniques are associated with a greater overall survival rate ✓ 13
- D. Subcutaneous heparin will completely prevent DVTs x
- E. Hypocapnia produced by IPPV is beneficial. x

18. One of the following can be given by inhalation without causing systemic effects:

- A. Adrenaline x
- B. Orciprenaline
- C. Isoprenaline
- D. Beclomethasone. x
- E. Atropine. x

19. Complications of dextran-70 include all of the following EXCEPT:

- ☒ A. Hypocoagulability
- B. Interference with cross-matching ✓
- C. Hypervolaemia ✓
- D. Renal failure. ✓
- E. Antigenic reaction. ✓

20. Recognized causes of urinary retention include all of the following EXCEPT:

- A. Ketamine.
- B. Morphine
- C. Amitriptyline
- D. Ephedrine
- ☒ E. Frusemide. 15

21. For a patient suffering from Parkinson's disease on L-dopa, the following agent should not be used:

- A. Enflurane
- ☒ B. Droperidol
- C. Nitrous oxide
- D. Morphine
- E. Fentanyl.

(16)

22. Concerning analgesic drugs one is TRUE:

- A. Indomethacin is an addictive drug ×
- B. Paracetamol causes gastric irritation ×
- C. Unionised acetylsalicylic acid is absorbed more readily than the ionized form ×
- ☒ D. The analgesic properties of indomethacin are best seen when pain is associated with inflammation ✓
- E. Phenylbutazone is the drug of choice for headache.

(17)

23. Which of the following characteristics of local anesthetics is associated with long duration of action:

- A. High degree of lipid solubility
- ☒ B. High degree of protein binding.
- C. High molecular weight
- D. High pKa
- E. Presence of ester linkage

(18)

24. The side-effects of Enalapril, one is TRUE:

- A. Drowsiness
- B. Excess fluid retention
- ☒ C. Hyperglycaemia ✓
- D. Urinary retention
- E. Hyperkalemia

25. All of the following drugs are nephrotoxic EXCEPT:

- A. Kanamycin
- B. Clarithromycin
- ☒ C. Frusemide
- D. Amphotericin B
- E. Cephaloridine

19

26. Which of the following statements regarding sugammadex is TRUE?

- A. It is a modified α -cyclodextrin
- B. The drug forms complexes with steroidal neuromuscular blocking drugs with a ratio of 1:2
- C. Following sugammadex administration to reverse rocuronium-induced neuromuscular blockade the measured total plasma rocuronium concentration will rise \times
- D. The majority of the drug is metabolised and excreted by the kidneys \times
- E. Sugammadex exerts its effect by binding with rocuronium at the neuromuscular junction \times

27. In carbon monoxide poisoning the following are seen EXCEPT:

- A. Arrhythmias
- B. Hypotension
- C. Extensor plantars
- D. Cyanosis.
- E. Hyperventilation.

28. At 30°C:

- A. Oxygen consumption is one-third that at 37°C
- B. Oxygen solubility is decreased
- C. J-waves might appear on the ECG.
- D. Active rewarming should be commenced
- E. Carbon dioxide solubility is reduced.

29. In the oxygen dissociation curve, ONE of the following cause a right shift :

- A. Low-molecular-weight dextran
- B. Digitalis
- C. Hyperthermia
- D. Respiratory alkalosis
- E. Hypoxia.

30. Warming blood to 37°C during massive blood transfusion causes, one of the following:

- A. Decreases the risk of citrate toxicity \times
- B. Decrease plasma potassium concentration \times
- C. Increases plasma carbon dioxide tension
- D. Decreases the incidence of arrhythmia \times
- E. Increases CO₂ buffering capacity of cells.

31. P waves are absent in

- A. Atrial flutter
- ☒ B. Atrial fibrillation
- C. Nodal tachycardia
- D. Ventricular tachycardia
- E. Hypokalaemia

(24)

32. A raised creatinine associated with normal renal function can occur in ALL of the following circumstances EXCEPT:

- A. Muscle damage ✓
- B. High muscle mass ✓
- C. Cimetidine therapy ✓
- ☒ D. Liver failure
- E. Red meat ingestion ✓

(27)

33. Chronic renal failure may lead to the following complications EXCEPT:

- A. Pericarditis ✓
- B. Peripheral neuropathy ✓
- C. Tertiary hyperparathyroidism
- D. Pruritus ✓
- E. Secondary hypoparathyroidism

(26)

34. The following may cause hyperkalaemia

- A. Amiloride treatment x
- B. Conn's syndrome
- C. Increase i.v. intake x
- ☒ D. Addison's disease
- E. Acute renal failure x

(25)

35. The oculocardiac reflex is prevented by all of the following EXCEPT:

- A. Atropine ✓
- ☒ B. Small increments of isoprenaline
- C. Retrobulbar block ✓
- D. Deep anaesthesia ✓
- E. Avoidance of traction on extraocular muscles. ✓

(28)

36. Intraocular pressure is increased by all EXCEPT:

- A. Hypercapnia ✓
- B. Extrinsic compression of the globe with an anaesthetic mask ✓
- C. Suxamethonium ✓
- D. Intubation ✓
- ☒ E. Deep inhalational and thiopentone anaesthesia

(29)

37. All of the following adversely affect the outcome of ventricular defibrillation, EXCEPT:

- A. Increasing time from onset of ventricular fibrillation (VF) to first defibrillation. ✓
- B. Age of Patient. ✓
- C. Acidosis. ✓
- D. Defibrillation during inspiration.
- E. Digoxin toxicity. ✓

(30)

38. Which ONE IS TRUE regarding the use of inhaled nitric oxide in ARDS

- A. Decreases systemic arterial pressure.
- B. Decreases pulmonary arterial pressure.
- C. Increases intrapulmonary shunt.
- D. Leads to toxic side effects in inspired concentrations of 110 ppm.
- E. Increase systemic venous oxygen tension.

(31)

39. Charcoal is effective in all of the following drug overdoses, EXCEPT

- A. Barbiturate.
- B. Antidepressant
- C. Diazepam.
- D. Theophylline.
- E. Cyanide

(32)

→ 40. Concerning the neuroleptic malignant syndrome, all the following are true EXCEPT

- A. Can be precipitated by droperidol
- B. Is potentially fatal
- C. Is characterised by dystonia, rigidity and hypothermia
- D. Can result in autonomic lability
- E. May lead to rhabdomyolysis

41. Vancomycin, which is FALSE

- A. Is effective against Gram +ve aerobic organisms
- B. Penetrates the CSF
- C. Is well absorbed orally ✗
- D. Can be associated with profound hypotension during intravenous administration
- E. Inhibits bacterial cell wall synthesis

(33)

42. Features of disseminated intravascular coagulation include all the following EXCEPT:

- A. A lowered fibrinogen level
- B. A prolonged prothrombin time ✓
- C. Heparin a reasonable treatment following placental abruption (34)
- D. May occur secondary to malaria
- E. May have a compensated phase with no bleeding. ✓

43. In ketoacidotic diabetic coma, which is FALSE

- A. Large volume administration of dextrose-free solutions are required in resuscitation ✓
- B. Potassium supplementation will be required
- C. The hourly insulin treatment adjusted according to sliding scale.
- D. Early use of Bicarbonate therapy is indicated (35)
- E. Artificial ventilation may be required ✓

44. Epiglottitis, which ONE IS TRUE

- A. Is commonest in children between six months and three years (36)
- B. There may be no systemic upset in the child
- C. Cannulation is mandatory before attempting to control the airway
- D. Staphylococcus is the usual causative organism
- E. Intubation for 24 hours is usual.

45. All the following are true regarding Organophosphorus compounds, EXCEPT:

- A. Are readily absorbed across the skin ✓
- B. Inhibit acetylcholinesterase ✓
- C. Has no effect on plasma cholinesterase (37)
- D. Can cause autonomic instability ✓
- E. Can have their action reversed by pralidoxime ✓

→ 46. Recognized effects of PEEP include all of the followings, EXCEPT:

- A. Sodium retention
- B. Fall in cardiac output ✓
- C. Rise in closing volume ✓ (40)
- D. Rise in FRC ✓
- E. Rise in CVP (cerebral venous pressure) ✓

47. In septic shock, all the followings are true, EXCEPT:

- A. Peripheral hypothermia is associated with poor prognosis ✓
- B. The patients usually have an increased cardiac output ✓ (38)
- C. The patients usually have a depleted circulating volume ✓
- D. The causative organisms are mostly Gram-negative ✓
- E. Antibiotics should not be given before blood culture results are available .

48. An 8-year-old child is rescued 20 minutes after drowning and has a core temperature of 30°C and fixed dilated pupils. Further appropriate treatment includes ONE of the following:

- A. Phenobarbitone
- B. Rapid rewarming (39)
- C. Hyperventilation x
- D. Steroids x
- E. Defibrillation in double usual dose. x

49. The following findings occur with a large pulmonary embolus, EXCEPT:

- A. An increase in pulmonary artery pressure ✓
- B. An increase in right ventricular pressure ✓
- C. An increase in left atrial pressure ✓
- D. An increase in physiological dead-space ✓
- E. Within normal right atrial pressure ✓

50. The following statements regarding intensive care unit (ICU)-acquired weakness are true EXCEPT:

- A. The incidence of critical illness polyneuropathy among septic shock patients on the ICU is 80% ✓
- B. Muscles of facial expression are spared by critical illness polymyopathy
- C. Presence of normal deep tendon reflexes does not eliminate the diagnosis of critical illness polyneuropathy
- D. Persistent hyperglycaemia is an independent risk factor for ICU-acquired weakness x
- E. Electrophysiological studies typically show a reduced nerve conduction velocity ✓

→ 51. Ultrasound, all true **EXCEPT**:

- A. Provides real-time imaging guidance during needle advancement ✓
- B. Does not differentiate extravascular injection from unintentional intravascular injection ✗ (40)
- C. Interface is the boundary between two tissue media with different acoustic impedances
- D. Medical ultrasound commonly is in the 2.5-15 MHz range.
- E. The pulse length (PL) is the distance traveled per pulse ✓

→ 52. The fall in urine output associated with major trauma may be caused by all the followings **EXCEPT**:

- A. Haemorrhage ✓
- B. A rise in antidiuretic hormone activity ✓ (41)
- C. A fall in aldosterone activity ✗
- D. An increase in the level of circulating catecholamines ✓
- E. A rise in corticosteroid output

53. A 72-year-old woman with stable angina is undergoing bowel resection. Anaesthesia is induced with etomidate. Five minutes after starting isoflurane 1% in nitrous oxide 50%, her blood pressure decreases from 110/84 to 70/40 mmHg. The **MOST LIKELY** cause is

- A. Coronary steal produced by isoflurane
- B. Direct myocardial depression produced by isoflurane
- C. Vasodilation produced by isoflurane ✗
- D. Adrenocortical suppression produced by etomidate ✗
- E. Myocardial depression produced by etomidate ✗

54. The MAC of isoflurane is decreased by

- A. Ethanol-induced enzyme induction.
- B. Hyperventilation to a paCO_2 of 25 mmHg. (42)
- C. Chronic anemia to a hematocrit of 20%.
- D. Decreased body temperature to 34°
- E. Is the same as halothane

→ 55. H_2 -receptor antagonists are of benefit in the treatment of all the following conditions **EXCEPT**:

- A. Uncomplicated duodenal ulcer
- B. Zollinger-Ellison syndrome (43)
- C. Mendelson's syndrome
- D. Uncomplicated gastric ulcer
- E. Reflux oesophagitis

56. Which of the following is NOT included in tetralogy of Fallot?

- A. Patent ductus arteriosus
- B. Right ventricular hypertrophy ✓
- C. Ventricular septal defect ✓
- D. Overriding aorta ✓
- E. Pulmonary artery stenosis ✓

(44)

57. Which of the following muscle relaxants is eliminated the most by renal excretion?

- A. Pancuronium
- B. Vecuronium
- C. Pipecuronium
- D. Rocuronium
- E. Doxacurium

(45)

58. Which of the following vasopressor agents increases systemic blood pressure indirectly by stimulating the release of norepinephrine from sympathetic nerve fibres and directly by binding to adrenergic receptors?

- A. Dobutamine *
- B. Ephedrine ✓
- C. Epinephrine *
- D. Phenylephrine ✓
- E. Methoxamine *

(46)

59. The most important reason for the more rapid onset and shorter duration of action of fentanyl compared with morphine is the difference in

- A. Volume of distribution
- B. Hepatic clearance
- C. Renal clearance
- D. Lipid solubility
- E. Protein binding

(47)

60. In patients with blunt head trauma, cerebral perfusion pressure is determined by the gradient between:

- A. Diastolic pressure and central venous pressure
- B. Intracranial pressure and central venous pressure
- C. Mean arterial pressure and central venous pressure
- D. Mean arterial pressure and intracranial pressure
- E. Systolic pressure and intracranial pressure

(48)

CVP = MAP - ICP

61. A patient has hoarseness after undergoing surgery involving the aortic arch. The most likely cause is an injury to which of the following nerves? (49)
- A. Glossopharyngeal
 - B. Left recurrent laryngeal →
 - C. Right recurrent laryngeal
 - D. Left superior laryngeal
 - E. Right superior laryngeal
62. During induced hypotension for clipping of a cerebral aneurysm in a 20-degree head-up position, the arterial pressure transducer should be zero referenced at which level? (50)
- A. External auditory meatus
 - B. Midaxillary line at the fifth intercostal space
 - C. Sternal notch x
 - D. Thyroid cartilage x
 - E. Top of the cranium x
63. Each of the following conditions is associated with upregulation of the acetylcholine receptor at the neuromuscular junction EXCEPT:
- A. Burn injuries ✓
 - B. Myasthenia gravis ✓
 - C. Prolonged bed rest
 - D. Prolonged use of neuromuscular relaxants ✓
 - E. Upper motor neuron injury ✓
64. Four days after subarachnoid hemorrhage and surgical clipping of a cerebral aneurysm, a patient develops cerebral artery vasospasm. Appropriate treatment included each of the following EXCEPT:
- A. Admission of nimodipine ✓
 - B. Controlled hypertension ✓
 - C. Hemodilution to hematocrit of 33%
 - D. Hyperventilation to PaCO₂ of 25 to 30 mmHg ✓ 52
 - E. Increasing preload ✓
65. Each of the following conditions can be accurately evaluated with transesophageal echocardiography EXCEPT:
- A. Intimal tear at the aortic arch
 - B. Intracardiac air ✓
 - C. Left atrial thrombus ✓
 - D. Patent foramen ovale ✓
 - E. Right atrial myxoma ✓ (51)

66. A 120 Kg 56 years – old man undergoing gastrectomy during anesthesia with Fentanyl and Isoflurane has a PetCO₂ of 35 mmHg and a PaCO₂ of 50 mmHg. His FEV₁ / FVC ratio is 80% of predicted. Heart rate is 120 bpm and arterial blood pressure is 80/40 mmHg. Which of the following is the most likely cause of the difference in PaCO₂ and PETCO₂ ?

- A. Aspiration pneumonitis
- B. Chronic obstructive lung disease
- ☒ C. Decreased cardiac output
- D. Decreased V_d / V_t ratio
- E. Increased Q_s / Q_T ratio

(S3)

67. A patient is undergoing exploration of a stab wound to the left side of the neck. On awake laryngoscopy, the vocal cord is midposition and the right vocal cord is abducted during inspiration. The most likely cause of these findings is trauma to which of the following structures on the left

- A. C7-8 nerve root
- B. Stellate ganglion
- C. Glossopharyngeal nerve
- D. Superior laryngeal nerve
- E. Vagus nerve

68. Which of the following statements regarding latex allergy is TRUE

- ☒ A. Diphenhydramine is the drug of choice for latex-induced anaphylactic reaction
- B. Hospital workers are at equal risk as general population ✗
- C. It is more common in patients with frequent urethral catheterization ✗
- D. Latex gloves can be rinsed free of antigen ✗
- E. Skin testing should be performed immediately after an acute reaction in the operating room ✗

69. Compared with healthy persons, patients with myasthenic syndrome (Eaton-Lambert) have increased

- A. Resistance to vecuronium ✗
- B. Response to neostigmine during reversal of muscle paralysis ✗
- ☒ C. Sensitivity to succinylcholine ✓
- D. Susceptibility to development of malignant hyperthermia
- E. Weakness with repetitive activity ✗

(S4)

70. After the bronchial and tracheal cuffs of a right endobronchial tube are inflated, ventilation through the tracheal port is not possible. This finding is most consistent with:
- A. Cuff occlusion of the right upper lobe bronchus
 - B. Intubation of the left bronchus
 - C. Left-sided tension pneumothorax
 - D. Overinflation of the bronchial cuff
 - E. Positioning of both cuffs in the trachea
71. During an inguinal hernia repair, a newborn infant will have a larger fluid requirement (in milliliters per kilogram) than an adult because of relatively greater
- A. Insensible water loss
 - B. Lean body mass
 - C. Metabolic rate
 - D. Sodium loss
 - E. Third space losses
72. A woman has weakness of the right quadriceps and a decreased knee jerk reflex on the right one day after forceps delivery under epidural anesthesia. The most likely cause is:
- A. Epidural hematoma
 - B. Intrapleural nerve trauma
 - C. Lithotomy positioning
 - D. Reaction to the preservative in the anaesthesia solution
 - E. Trauma from the epidural needle
73. Which of the following is most indicative of reflex sympathetic dystrophy?
- A. Dry skin
 - B. Dull pain that improves with movement
 - C. Fasciculations
 - D. Motor weakness
 - E. Pallor and cyanosis

74. Which of the following statement concerning use of amitriptyline to treat chronic pain is true?

- A. It acts primarily via opioid receptors
- ☒ B. It increases serotonin levels in the brain
- C. It is rarely effective for postherpetic neuralgia
- D. Onset of action occurs after four to six weeks of treatment
- E. Response depends on reversal of depression

(60)

75. Which of the following will have the least effect on the shape of the autoregulatory curve for cerebral blood flow?

- A. Isoflurane
- B. Nitroprusside
- C. Hypercrabia
- ☒ D. Essential hypertension
- E. Cerebral infarction

(59)

GOOD LUCK